forming a storage electrode over a semiconductor substrate;

forming a high dielectric layer over the storage electrode;

forming a plate electrode directly on the high dielectric layer;

performing a first post-annealing of the semiconductor substrate under an inert atmosphere at a first temperature; and

performing a second post-annealing of the semiconductor substrate, after the first post-annealing, at a second temperature lower than the first temperature in an oxygen environment,

the first and second post-annealings being performed in-situ,

wherein the plate electrode is formed of one selected from the group consisting of Pt, Ru, Ir, IrO_2, RuO_2, $SrRuO_3$, $CaSrRuO_3$, $BaSrRuO_3$, an alloy containing Pt, an alloy containing Ru, and an alloy containing Ir.

9. (Three Times Amended) A method for manufacturing a capacitor of a semiconductor device, comprising:

forming a storage electrode over a semiconductor substrate;

forming a high dielectric layer over the storage electrode;

forming a plate electrode directly on the high dielectric layer;

performing a first post-annealing of the semiconductor substrate under an inert atmosphere at a first temperature; and

performing a second post-annealing of the semiconductor substrate, after the first post-annealing, at a second temperature lower than the first temperature in an oxygen environment,

C2 3rd

the first and second post-annealings being performed after the forming of the plate electrode,

wherein the plate electrode is formed of one selected from the group consisting of Pt, Ru, Ir, IrO_2, RuO_2, $SrRuO_3$, $CaSrRuO_3$, $BaSrRuO_3$, an alloy containing Pt, an alloy containing Ru, and an alloy containing Ir.

12. (Twice Amended) A method for manufacturing a capacitor of a semiconductor device, comprising:

C3 3rd

forming a storage electrode over a semiconductor substrate;

forming a high dielectric layer over the storage electrode;

forming a plate electrode directly on the high dielectric layer;

performing a first post-annealing of the semiconductor substrate under an inert atmosphere at a first temperature;

performing a second post-annealing of the semiconductor substrate, after the first post-annealing, at a second temperature lower than the first temperature in an oxygen environment; and

forming an interdielectric layer over the plate electrode,

the first and second post-annealings being performed after the forming of the interdielectric layer,

C3 amd

wherein the plate electrode is formed of one selected from the group consisting of Pt, Ru, Ir, IrO_2, RuO_2, $SrRuO_3$, $CaSrRuO_3$, $BaSrRuO_3$, an alloy containing Pt, an alloy containing Ru, and an alloy containing Ir.

15. (Twice Amended) A method for manufacturing a capacitor of a semiconductor device in which: a storage electrode; a high dielectric layer; a plate electrode formed directly on the high dielectric layer and comprising one selected from the group consisting of Pt, Ru, Ir, IrO_2, RuO_2, $SrRuO_3$, $CaSrRuO_3$, $BaSrRuO_3$, an alloy containing Pt, an alloy containing Ru, and an alloy containing Ir; and an interdielectric layer are sequentially formed on a semiconductor substrate, further comprising:

C4

performing a first post-annealing of the semiconductor substrate under an inert atmosphere at a first temperature; and

performing a second post-annealing of the semiconductor substrate, after the first post-annealing, at a second temperature lower than the first temperature in an oxygen environment,

the first and second post-annealings being performed after forming of the plate electrode.

Please cancel claims 3 and 17.